

SECOND DRAFT WORKPLAN

FOR THE 1980-81

San Francisco Bay Areawide Water Quality Management Program

NOVEMBER 1979

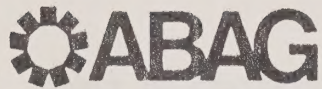
INSTITUTE OF GOVERNMENTAL
STUDIES LIBRARY

AUG - 1 1980

UNIVERSITY OF CALIFORNIA

Prepared by the staff of the

ASSOCIATION OF BAY AREA GOVERNMENTS



Association of Bay Area Governments

Hotel Claremont • Berkeley, California 94705 • (415) 841-9730

November 8, 1979

Peter Rogers, Chief
Division of Planning and Research
State Water Resources Control Board
P.O. Box 100
Sacramento, CA 95801

Dear Mr. ^{Pete}~~Rogers~~:

ABAG is pleased to submit its revised draft 1980-81 Workplan for the San Francisco Bay Area Water Quality Management Program. These proposals have been developed after careful review by our staff, members of other participating agencies, and interested parties. Tasks are divided into priority categories to assist you in recommending projects to the EPA.

We look forward to continuing this important work for the benefit of the Bay and the region's citizens.

Sincerely,

Revan A.F. Tranter
Executive Director

80 03551

Q4BAC

Association of Bay Area Governments

San Francisco, California 94102

San Francisco, California

San Francisco, California

San Francisco, California

San Francisco, California

San Francisco, California

San Francisco, California

San Francisco, California

San Francisco, California

San Francisco, California

San Francisco, California

San Francisco, California

San Francisco, California

San Francisco, California

San Francisco, California

San Francisco, California

San Francisco, California

San Francisco, California

San Francisco, California

San Francisco, California

San Francisco, California

San Francisco, California

San Francisco, California

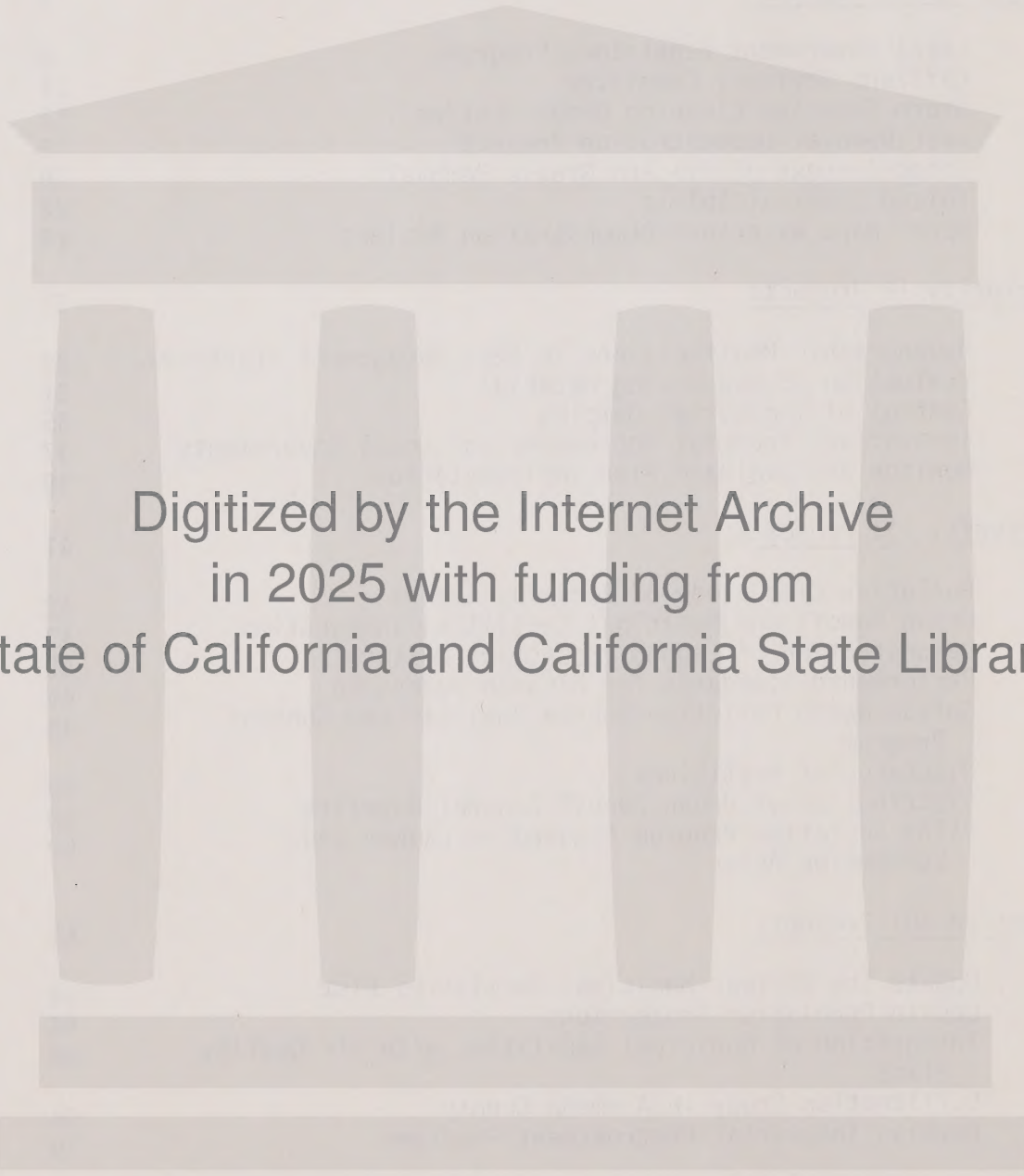
INSTITUTE OF GOVERNMENTAL
STUDIES LIBRARY

JAN 24 2025

UNIVERSITY OF CALIFORNIA

TABLE OF CONTENTS

<u>Introduction</u>	<u>Page</u> 1
<u>Proposed Budget Allocations for 1980-81</u>	3
<u>Priority I Projects</u>	5
Local Government Regulatory Programs	6
Citizens Advisory Committee	11
Storm Sewerage Cleaning Demonstration	13
Leaf Removal Demonstration Project	16
Effectiveness of Oil and Grease Removal	19
Inland Chemical Spills	22
Upper Napa Watershed Demonstration Project	24
<u>Priority II Projects</u>	27
Hydrographic Modifications as Best Management Practices	28
Evaluation of New Paving Material	31
Control of Industrial Dumping	35
Innovative Financial Approaches for Local Governments	37
Monitor and Evaluate Plan Implementation	39
<u>Priority III Projects</u>	41
Pollution Case Study of Berkeley Creeks	42
Urban Runoff and Municipal Facilities Integration	43
Demonstration of Lagoon Protection Measures	45
Performance Standards for Nicasio Watershed	46
Suisun Marsh Pollution Source Analysis and Control Program	48
Discharge of Pesticides	49
Distribution of Urban Runoff Control Benefits	50
Pilot Education Program Focused on Lagoon and Streamside Areas	52
<u>Section 201 Projects</u>	53
Update the 20-Year Municipal Facilities List	54
Update Population Projections	55
Integration of Municipal Facilities with Air Quality Plans	56
Exfiltration Study in Alameda County	58
Develop Industrial Pretreatment Programs	59



Digitized by the Internet Archive
in 2025 with funding from
State of California and California State Library

<https://archive.org/details/C123314491>

INTRODUCTION

This work program presents planning activities needed to develop or facilitate implementation of water quality control measures in the San Francisco Bay Area during 1980-81. The proposed tasks or projects build upon and extend the planning work for the San Francisco Bay Region Environmental Management Plan (EMP). The proposed program is comprehensive, yet problem oriented, with a continuing major effort to deal with surface runoff pollution. It also addresses other major pollution sources. This approach is essential to further the region's progress in water quality clean-up and to take maximum advantage of the substantial progress achieved to date.

With EPA's approval of the water quality portions of the EMP on 14 February 1979, a major initial effort in water quality planning was concluded. With the active participation of local governments, agencies and citizens, water quality problems were identified and solutions, in the form of policies and specific actions, placed in the EMP. The current planning effort for 1979-80 addresses some of those problems in the development of steps necessary for implementation. Due to funding constraints, several significant problem areas were not addressed. Additionally, further information was needed before other problems could be solved. The work proposed intends to resolve some of these problems.

This work program is presented in five major sections. A budget summary follows the introduction and allows quick review and reference to proposed projects. Projects addressing non-point source pollution are presented in three categories or priorities. Priority I projects are deemed the most desirable or critical to our planning program. Within the Priority I grouping, the projects are presented in descending order of priority. This ranking and grouping of projects reflects staff interpretation of regional needs, national priorities, and EPA's eligibility requirements. This ranking will be reviewed by the Regional Planning, Water Quality Technical Advisory and Citizens' Advisory Committees and recommendations will be made to adjust the ranking of projects.

Finally, a group of projects related to municipal point sources is presented. It is recognized that recent EPA memoranda state such projects to be ineligible for Section 208 funding. However, such projects are essential for water quality planning in the Bay Area and several are required by EPA regulations. ABAG proposes that, since these projects or tasks relate to the Section 201 Construction Grants Program, funding for designated agencies from that program be obtained to support them--consistent with the State Board/EPA Agreement.

Certain features or highlights of the 1980-81 workplan should be emphasized at this time. The following sections briefly review these features.

Local Regulatory Programs

It is widely agreed that local governments such as counties, cities or special districts are the agencies best suited to control surface runoff pollution. These agencies deal, as a matter of course, with land use, construction and public works services which are key determinants in surface runoff. It is important that local governments have the tools with which to control runoff pollution and protect water quality. The basic tool or approach is a local regulatory program. Such a program involves three key elements: ordinances, performance standards, and enforcement or implementing capability. In the current planning program ABAG will have made substantial progress in the development of ordinance features or specifications and performance standards or criteria for a number of best management practices. These products will be featured in a Specifications Manual for Surface Runoff Control. This manual, unlike many handbooks prepared previously and elsewhere, will contain specifications and state-of-the-art design criteria for every recommended control measure. It's expected that such a manual would be referenced in the ordinances and adopted as part of local regulatory programs. Using the manual as a basis, the proposed task for regulatory programs would develop a complete regulatory program package for use by local governments. The proposed task would endeavor to obtain adoption of ordinances, complete specifications for certain management practices, and institute implementation through local building and grading inspectors.

Major Demonstration Programs

A number of public works practices and physical techniques have been identified as best management practices for surface runoff pollution control. Local governments wishing to adopt such practices are faced with a lack of adequate information and guidance. Some practices are being investigated elsewhere under the National Urban Runoff Program (NURP) but it has been demonstrated that, because of unique West Coast climate and geologic conditions, nationally derived data cannot be directly applied in the Bay Area or even most of California. San Jose and Castro Valley projects have verified this for street sweeping. ABAG therefore proposes essential demonstration projects for prime candidate control measures. These projects would bring national data to the region, test control measures under local conditions, obtain specifications and performance standards under local conditions, demonstrate water quality benefits, address a pollution source at the demonstration site and achieve a first step in implementation. The 1980-81 program concentrates on control measures that have high potential for benefiting water quality, are receiving the least attention in programs elsewhere in the country, and would not duplicate NURP projects due to the nontransferability of data.

Water Quality Management Program
Proposed Budget Allocations for 1980-81

<u>WORKPLAN ELEMENT</u>	<u>PARTICIPANTS</u>	<u>PROPOSED BUDGET, \$1000</u>
<u>Priority I Projects</u>		
Local Government Regulatory Programs	ABAG, Santa Clara County and cities, Council of Bay Area RCDs	\$567.
Citizens Advisory Committee	ABAG	33.
Storm Sewerage Cleaning Demonstration	ABAG, Alameda County FCWCD, Consultant	200.
Leaf Removal Demonstration Program	ABAG, City of Palo Alto	167.
Effectiveness of Oil and Grease Removal	ABAG, City of Richmond, Consultant	200. (Phase I)
Inland Chemical Spills	ABAG, County Offices of Emergency Services	126.7
Upper Napa Watershed Demonstration Project	ABAG, Council of Bay Area RCDs	295. (Phase I)

Priority I Total 1,588.7

Priority I Federal Funds 1,179.75

Priority II Projects

Hydrographic Modifications as Best Management Practices	ABAG, Counties, Consultant	155.
Evaluation of New Paving Material	ABAG, City of Concord, Consultant	164.
Control of Industrial Dumping	ABAG, Santa Clara County San. D.	142.7
Innovative Financial Approaches for Local Governments	ABAG	87.5
Monitor and Evaluate Plan Implementation	ABAG	50.

Priority III Projects

Pollution Case Study of Berkeley Creeks	ABAG, City of Berkeley	\$101.4
Urban Runoff and Municipal Facilities Integration	ABAG	269.5
Demonstration of Lagoon Protection Measures	ABAG, San Mateo County	160.
Performance Standards for Nicasio Watershed	ABAG, Marin County, Marin Mun. Water D.	76.
Suisun Marsh Pollution Source Analysis and Control Program	ABAG, Solano County	157.3
Discharge of Pesticides	ABAG	33.3
Distribution of Urban Runoff Control Benefits	ABAG, Consultant	112.
Pilot Education Program Focused on Lagoon and Streamside Areas	ABAG, San Mateo County, East Palo Alto Mun. C., PROBE, Daly City	46.7

Section 201 Projects

Update the 20-Year Municipal Facilities List	ABAG	48.
Update Population Projections	ABAG	110.
Integration of Municipal Facilities with Air Quality Plans	ABAG	62.7
Exfiltration Study in Alameda County	ABAG, Alameda County FCWCD	169.4
Develop Industrial Pretreat- ment Programs	ABAG	28.

PRIORITY I PROJECTS

Problem Area

Erosion and sediment are major water quality problems in the Bay Area. Eroded soil makes streams turbid, covers fish spawning beds, clogs streams and reduces reservoir capacity. Twenty-eight percent of the reservoirs in the Bay Area are identified as having sedimentation problems. The actual number affected is probably much greater. The Regional Water Quality Control Board has estimated that approximately 10 million cubic yards of material are dredged annually from waterways in the Bay Area at a cost of about \$12 million.

Much of this problem is generated from construction sites, particularly on hillsides. Measures to control the problem are available but are not being implemented on a widespread basis. Most local governments in the Bay Area lack design criteria and technical specifications for such control measures. Many jurisdictions have grading and other development ordinances which are inadequate to protect water quality. Most jurisdictions do not have staff with sufficient training in erosion and sediment control to adequately enforce a control program. Most of the existing BMP handbooks lack standards and specifications appropriate for the Bay Area. Without such standards or local expertise to apply the general guidelines in the current handbooks, effective implementation of erosion control programs is not possible. Precise standards have been developed for several East Coast areas, but these standards have not been interpreted for West Coast application, and should not be applied unchanged.

The outputs from the 1979-80 Work Program (see Introduction) will form the basis of local government regulatory programs for erosion and sediment control. However, these regulatory programs will not work effectively unless critical missing elements are provided. An effective local regulatory program for erosion and sediment control must have the following components:

- 1.0) Legal authority for and public interest in erosion and sediment control
- 2.0) Enforcement capability
- 3.0) Standards for erosion and sediment control measures

Satisfying these missing elements is the objective of this task.

Objective and Approach

The objective of this task is to have, at the end of the year, effective and operating regulatory programs for local government to control erosion and sedimentation. The following are the sub-elements of this task:

Objective 1.0 - Establish legal authority for and public interest in erosion and sediment control.

Task 1.1 Assist adoption of local ordinances and regulations.

In the 1979-80 Work Program ABAG is evaluating and developing improvements to existing surface runoff-related ordinances regionwide, and discussing them with local public works staffs. The present task will continue this work with the objective of getting local governments to adopt and implement legal and regulatory changes to protect water quality.

Objective 2.0 - Improve enforcement capability

Task 2.1 Train inspectors and builders in effective erosion and sediment control methods.

A series of intensive workshops will be conducted to train local public works and building officials, planners, builders and private engineers in state-of-the-art techniques for controlling erosion and sedimentation. The workshops will cover the following subjects:

- o design, operation and maintenance of erosion and sediment control measures (including standards and specifications)
- o inspection and enforcement procedures
- o estimation of sediment yield and water quality consequences of erosion and sedimentation.

Task 2.2 Demonstrate and initiate RCD/local government cooperative project review program.

As part of the 1979-80 work program, the Council of Bay Area RCDs is negotiating Memoranda of Understanding with local agencies. These MOUs will set forth the services which RCDs will provide to cities and counties. As a minimum, these services will include RCD review of the adequacy of erosion and sediment control measures in project applications. This task will provide for at least one full time staff person, trained in erosion and sediment control techniques, to demonstrate implementation of the MOU services. During this one-year pilot program, cities and counties will be encouraged to allocate local funds to continue the program in the future.

Objective 3.0 - Promulgate standards for effective control of erosion and sedimentation

Task 3.1 Print and distribute BMP specifications manual

A manual of standards and specifications for surface runoff control measures applicable to the Bay Area is now being considered. Several hundred copies of this manual will be printed and distributed to key staff persons in each city and county planning and public works department. Copies will also be made available to builders, consulting engineers and contractors who are involved in construction activities in the Bay Area.

Task 3.2 Develop design standards for Bay Area sediment basins

Sediment basins are probably the most effective means available for controlling sediment from construction sites. Yet, the sizing and construction of these basins is a field in which there is little data for the Bay Area. This task will review the existing standards in light of the topographic and climatic differences between the Bay Area and the East Coast. Existing sediment basins will be evaluated for the adequacy of their designs and sizing. The results from this task will update the interim standards in the 1980 manual.

Task 3.3 Develop design standards for erosion control on small construction projects

Small construction projects (typically, owner built homes and small subdivisions) on hillsides are causing severe erosion problems, landslides and other hazards. These projects, because of their size, have largely been unregulated. This task will establish specifications for simple, low-cost control measures for application to small sites.

Task 3.4 Develop Bay Area vegetation standards and specifications for slope stabilization

Developers and property owners need information on the selection and propagation of landscaping vegetation to stabilize construction sites and areas susceptible to high erosion and landslides. Specific guidelines for the Bay Area have not yet been developed. This task will identify appropriate vegetative types, planting schedules, seeding rates, mulching and binding techniques, irrigation and other maintenance procedures.

Task 3.5 Develop simple sediment yield prediction methods for Bay Area watersheds

Planning and design of erosion control systems require sediment yield predictions. Gross predictions can be made using the Universal Soil Loss Equation; however this method must be applied with local parameters. This task will consider historic rainfall patterns, topographic and soil characteristics, watershed size and existing sediment data unique to the Bay Area and provide these factors as part of the Specifications Manual.

Task 3.6 Test effectiveness of regulatory programs developed in 1979-80 and 1980-81

Both the 1979-80 and 1980-81 work programs are developing ordinances and detailed specifications for regulating erosion control. This task will examine the performance of enforcement programs and application of control measures to construction areas within a selected jurisdiction in Santa Clara County. All BMP practices included in the Specifications Manual which have been applied will be critically examined for effectiveness and revisions recommended as necessary.

Schedule

July 1980 - June 1981

Participants

ABAG
Santa Clara County and cities
Council of Bay Area RCDs

Budget

1.1	Assist adoption of local ordinances and regulations	\$48,000
2.1	Train inspectors and builders in effective erosion and sediment control methods	96,000
2.2	Demonstrate and initiate RCD/local government cooperative project review program	40,000
3.1	Print and distribute BMP Specifications Manual	6,000
3.2	Develop design standards for Bay Area sediment basins	55,000
3.3	Develop design standards for erosion control on small construction projects	40,000
3.4	Develop Bay Area vegetation standards and specifications for slope stabilization	40,000
3.5	Develop simple sediment yield prediction methods for Bay Area watersheds	15,000
3.6	Test effectiveness of regulatory programs developed in 1979-80 and 1980-81	110,000
	Project management and policy guidance	34,000
	Public information and participation	38,000
	Environmental impact assessment	32,000
	Management agency agreements	13,000
		<hr/>
Total		567,000
Federal Funds		425,250

Highlights

- o Regulatory program package (including information on legal authority, enforcement procedures, and standards for erosion and sedimentation controls) for adoption by local governments
- o Adoption of improved local grading and watercourse protection ordinances
- o Provides enforcement capabilities for erosion and sediment control
- o Integration of RCD and SCS expertise in erosion control into local government project review process
- o BMP Specifications Manual distributed to all key officials and developers
- o Bay Area standards and specifications for sediment basins, small construction site BMPs and vegetation for slope stabilization

- o Simple methods for sediment yield prediction for designing Bay Area sediment control measures
- o Verification of effectiveness of Bay Area BMP standards and revision of ineffective standards

CITIZEN'S ADVISORY COMMITTEE

Problem Area

The 1972 Federal Water Pollution Control Act Amendments emphasized the public's key role in decision-making for all water pollution control activities. The results of ABAG's extensive public participation program during the preparation, review and approval of the Environmental Management Plan verified the wisdom of expending staff time and resources in involving the general public. The central point of the participation program then was the Environmental Management Task Force. That the recommendations of this wide-based citizen body were overwhelmingly accepted by ABAG policy bodies proves that a commitment to community involvement pays off.

Regulations recently adopted by EPA for public participation programs under the Resource Conservation and Recovery Act, the Safe Drinking Water Act, and the Clean Water Act show a continued emphasis on public education and involvement, to create plans that are sensitive to local needs and values and to ensure support for plan implementation. ABAG has established a 24-member Bay Area Citizens Advisory Committee for Water Quality to review the San Francisco Bay Areawide Water Quality Management Program, the San Francisco Bay Basin Plan, Bay-Delta Aquatic Habitat Program, and San Francisco Bay Shellfish Harvesting Program. The federal regulations and ABAG's own recognition of the importance of this area of emphasis require that this support program be continued in the area of water quality.

Objectives and Approach

The Citizens Advisory Committee is the pivot point upon which a public participation program can revolve. As composed by EPA guidelines (one-fourth each of public interests, economic interests, public officials and private citizens) it forms the best balanced forum for discussion of water quality management issues and programs. Representation on the committee was established in such a manner that members would be responsible for communicating with key sectors of the general population. Through these representatives a general education and involvement program can be conducted. This two-way program--of learning and contributing--takes the form of committee meetings, workshops, forums and task forces; informational materials such as slide shows and printed pieces; and media exposure which involves citizens who would ordinarily be unexposed to water quality issues.

The objective of committee operation is to ensure that all sectors of the public be allowed the opportunity to become informed and have their viewpoints heard on proposed programs at each planning phase: problem definition, control measure development, plan integration/approval, and plan implementation. For this purpose, the public participation staff will be assisting the committee by working on a number of planes, to assure that all possible audiences are reached. This work will involve not only liaison with key organizations and associations allied to the field of water quality,

but outreach to previously unconcerned citizens. It will involve not only the preparation of summary materials for persons who need information on the programs being conducted, but expansion of media awareness of these programs so that opportunities for information and service can be made known.

Schedule

July 1980 - June 1981

Participants

ABAG

Budget

Staff support	\$19,600
Committee expenses	6,500
Printing and graphics	4,800
Mailing	2,100
	<hr/>
Total	33,000
Contract funds from SWRCB	11,000
Federal funds	16,500

STORM SEWERAGE CLEANING DEMONSTRATION

Problem Area

First year results of the Castro Valley, California, National Urban Runoff Project (NURP) indicate that pollutant deposition in the storm sewerage system may be a very important component in the total urban runoff mass balances. Sewerage deposition also is important when considering lag-time of mass flows from adjacent storms of different characteristics. Initial results of preliminary 208 inlet cleaning study by Alameda County indicate seasonal loadings which may contribute significantly to the polluttional load to receiving waters including a pronounced first-flush shock loading effect. (These results agree with information collected by Manning, et. al., 1977.)

More than 90% of the material in the storm sewerage system may be delivered to the receiving water during a significant rain. An optimized storm sewerage cleaning program could remove a large protion of that source's contribution to the receiving waters and thus possibly avoid the first flush shock effect.

The preliminary Castro Valley NURP project results indicate that when the ratios between the street surface washoffs and observed creek yields are greater than 1, this possibly indicates that most of the street surface material originating from the streets accumulates in the storm sewerage. This also lends credence to cleaning the storm sewerage as a Best Mangement Practice.

There is little data in the literature as to the composition and quantity of material in the storm sewerage system. The water pollution potential of this material is also not known but expected to be significant under some circumstances. In a preliminary study by Alameda County, a sampling of 20 inlets in the Elmhurst Creek Study Area revealed the following information:

Gross Wet Weight	1,700 lbs. (20 inlets)
Net Dry Weight	1,138 lbs. (20 inlets)
Average Moisture Content	33.5%
Average Dry Weight per Inlet	56.9 lbs.
Average Density per Cubic Foot	58 lbs.

Objective and Approach

The objectives of this task are:

- 1) Demonstrate water quality changes in the receiving water resulting from storm sewerage cleaning.
- 2) Quantify and chemically characterize the seasonal and annual loadings from inlets and storm drain pipes to receiving waters.
- 3) Determine cost, effectiveness and scheduling of storm sewerage cleaning optimized to protect receiving waters.
- 4) Establish recommended programs in Alameda County.

The approach to this task includes:

- o Experimental design - A number of inlets would be thoroughly cleaned and the total dry weights measures. This data would then be used to statistically calculate the required number of inlets to be sampled. This method would be applied in the existing Castro Valley study area and in selected subcatchments within the study area.
- o Storm Sewerage Sampling - Two methods may be used. The first may consist of taking relatively undisturbed core samples using a carbon dioxide (CO₂) freezing core sampling apparatus. The second method may consist of running clean water under controlled conditions into selected inlets. The discharge from these would be sampled and analyzed.
- o Cleaning Storm Sewerage System - In the preselected subcatchments, a number of inlets and pipes would be cleaned using the standard vacuum inlet cleaner. The total solids removed would be analyzed.
- o Receiving Water Monitoring - The three existing monitoring stations on surface creeks (which have 2 to 8 years of water quality data) would be kept operational. Two would serve the study area and one as a control. A number of other stations may have to be established at selected points within the subcatchments.
- o Data Analysis and Report Preparation - Data analysis would use the information obtained in this proposed project and be augmented by the analyzed data obtained in the Castro Valley NURP project.
- o Development of an Operation Program Storm Sewerage Cleaning Service can be optimized to protect receiving water, possibly through the provision of these services by a single countywide agency.
- o Technology Transfer - Program results and recommendations would be incorporated into ABAG's specifications manual for surface runoff controls and presented to every public works department in the region.

A discussion with EPA's NURP Project Manager revealed that such a project is not being undertaken for West Coast conditions and that local data must be obtained in order to apply concepts developed in the eastern United States.

Schedule

July 1980 - June 1981

Participants

ABAG
Alameda County Flood Control District
Consultant

Budget

Program direction	\$16,000
Experimental design	20,000
Storm Sewerage sampling	10,000
Implement cleaning program	50,000
Receiving water monitoring	45,000
Data analysis	15,000
Report preparation	22,000
Technology transfer	8,000
Public information	14,000

Total	\$200,000
-------	-----------

Federal funds	150,000
---------------	---------

Highlights

- o Identification of deposition characteristics in the sewerage system.
- o Identification of the pollution contribution from the storm sewerage system as a single variable for the Coastal California Climate Category.
- o Documentation of receiving water changes as a result of storm sewerage cleaning.
- o Preparation of strategic combination of Best Management Practices to be considered in reducing non-point source pollution.

Problem Area

The City of Palo Alto has over 100,000 trees, many of which are large deciduous varieties which line the streets. Consequently, in the fall months, Palo Alto is faced with a massive leaf debris removal problem. Leaves not removed impose a substantial organic and nutrient load in the storm sewers. Santa Clara County has reported siltation and debris accumulations in storm sewers as a countywide problem and the major contributions of BOD and nutrients coming from the urbanized areas.

To control this problem the city has a fleet of five mechanical sweepers, a compaction truck and a newly acquired Elgin-Whirlwind vacuum Sweeper. For the past several years, the City has conducted an intensive leaf pick-up program using the mechanical sweepers. While somewhat effective at picking up freshly fallen, moisture-containing leaves the mechanical sweepers do a poor job of removing older, drier leaf debris. These sweepers tend to pulverize the dry leaves on the pavement with a removal efficiency estimated to be as low as 10%. In addition, a few areas of the City have no curbs. Sweeping these non-curbed areas with mechanical equipment is not possible. Thus, leaf litter from these areas is not currently collected.

The best method to remove fallen leaves and benefit water quality at minimum expenditure is not developed or known for the West Coast. Existing literature is woefully sparse on engineering specifications for leaf removal programs.

Objective and Approach

The proposed study has the following objectives:

- Quantify the contribution of leaf litter to urban runoff pollution;
- Quantify the leaf-litter removal efficiency of mechanical sweepers in curbed areas;
- Quantify the leaf removal effectiveness of vacuum sweepers used in combination with mechanical sweepers;
- Demonstrate an alternative leaf debris removal system in both a curbed and a non-curbed area;
- Compare cost and effectiveness of the alternative system with conventional mechanical sweeping and with the combination of mechanical and vacuum sweeping;
- Develop the most cost-effective program for the City of Palo Alto.

This program will be composed of the following elements:

- Monitor leaf debris accumulation on streets and in storm drains. Quantify accumulation rates and seasonal loads.
- Develop Alternative leaf pick-up program for test areas. This program may include special pick-up of bagged leaves or leaf piles, and neighborhood collection stations where homeowners can bring leaf debris, possibly exchanging it for compost.
- Measure leaf debris loads on streets before and after mechanical and alternate removal methods. Correlate with weather patterns and with moisture content of leaves. (Leaf fall by wind, rain and dry fall). Quantify removal efficiency for different leaf moisture levels.

- Quantify effectiveness of alternative leaf removal programs. Compare cost effectiveness of alternative programs with mechanical and vacuum sweeping in curbed areas. Estimate water quality benefits of each leaf debris removal method tested.
- Develop optimum program for the City of Palo Alto based upon the preceding analysis.
- Add performance specifications to the definitive Specifications Handbook of Best Management Practices developed for Bay Area conditions.

A discussion with EPA's NURP Project Manager revealed that such a project is not being undertaken for West Coast conditions and that local data must be obtained in order to apply concepts developed in the eastern United States.

Schedule

July 1980 to June 1981

Participants

ABAG
City of Palo Alto

Budget

Project Management	\$15,000
Engineering design and evaluation	25,000
Leaf removal program	80,000
Sampling and analysis	20,000
Cost/benefit assessment	10,000
Public information	10,000
Handbook revision and management agreements	7,000
<hr/>	
Total	167,000
Federal funds	125,000

Highlights

- Performance specifications for leaf removal programs
- Demonstration of effectiveness for alternative methods
- Support for program by Palo Alto (attached letter)
- Benefits and costs defined for West Coast condition
- Potential alleviation of organic and nutrient pollutants in urban runoff

City of Palo Alto

CALIFORNIA
94301

OFFICE OF CITY MANAGER

(415) 329-2563

October 15, 1979

Mr. Fred Krieger
208 Project Officer
Environmental Protection Agency, Region IX
215 Fremont Street
San Francisco, CA 94105


Dear Mr. Krieger:

The City of Palo Alto, in conjunction with the Association of Bay Area Governments, has developed a proposal for a Leaf Removal Demonstration Program.

The City staff is highly interested in this proposal and urges EPA to fund it as part of the National Urban Runoff Program. The City, with over 100,000 trees, has had a serious leaf debris removal problem for many years. It is anticipated that the proposed study will produce information to enable Palo Alto and other cities to conduct more cost-effective leaf removal programs in the future.

As soon as an acceptable contract has been received, I will promptly forward it to the City Council for their review and approval.

Sincerely,



WILLIAM ZANER
City Manager

EFFECTIVENESS OF OIL AND GREASE REMOVAL

Problem Area

It has been documented through ABAG's water quality sampling program during 1976-77 that the numerous small watersheds of the East Bay area contribute a substantial amount of oil and grease to the San Francisco Bay. In fact, the annual amount is equivalent to a major oil spill from a tanker. The toxic effects of hydrocarbons in stormwater runoff are not yet well known. Neither is the source well established. It is speculated that the major source of petroleum hydrocarbons in urban runoff are associated with crank-case oil. In water it adversely affects aquatic organisms by interfering with normal biological exchange processes, lowering resistance to infection and limiting reproductive success. In addition, oil acts as carrier for various toxic chemicals, especially chlorinated hydrocarbon pesticides, which are in general use and are commonly detectable in urban runoff. Various oil and grease control measures have been established for industrial uses but the transfer of the developed technology to urban stormwater runoff pollution problems has been insufficient so far. Contracts with the regulatory agencies in California indicate the growing need for local demonstration of an operational program.

Objective and Approach

The project will examine the problem and potential mitigation measures in a small watershed in Richmond. It is a small watershed of 2.2 square miles for which a good data base has been already established. The project will build upon the existing data. This site was selected because it is believed to be typical for the Bay Area in terms of the quantities of oil and grease in stormwater runoff. In addition, the problem has been known to and acknowledged by City officials, and they have expressed interest in its mitigation.

The project will accomplish the following objectives:

- o Identify the specific components of oils and grease in stormwater runoff, the overall loads, and the best management practices that can address the problem.
- o Reduce the amount of oil and grease through appropriate control measure or measures installed in a selected demonstration area.
- o Determine the cost-effectiveness relationship of tested BMPs for control of oil and grease in stormwater runoff.
- o Develop coefficients for simulation and evaluation of oil and grease control effectiveness with the most commonly applied mathematical models (such as SWMM, MAC, STORM, and NPS) for easy transfer of results to other localities.

The project will be composed of the following elements:

- o Review of literature on oil and grease control in stormwater runoff.
- o Identify most appropriate BMPs for implementation in Richmond Watershed.
- o Implementation of identified controls.

- o Continuous monitoring of water quality.
- o Analysis and evaluation of data.
- o Management and Reporting.
- o Public information program.

A discussion with EPA's NURP Project Manger revealed that such a project is not being undertaken for West Coast conditions and that local data must be obtained in order to apply concepts developed in the eastern United States.

Schedule

Phase I - July 1980 - June 1981

Phase II - July 1981 - June 1982

Participants

ABAG
City of Richmond
Consultant

Budget

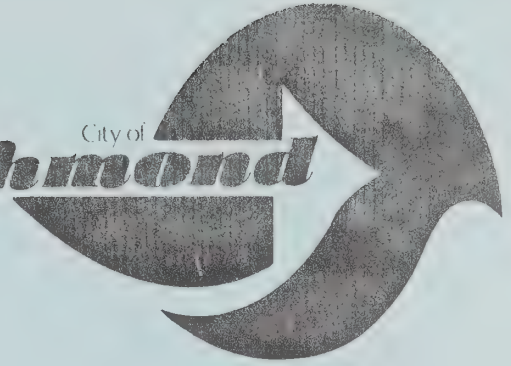
	Phase I	Phase II
Review of Literature	\$12,000	-
Identify BMPs	18,000	-
Implement BMPs	64,000	45,000
Continuous Sampling	71,000	95,000
Analysis of Results	18,000	35,000
Management & Reporting	10,000	10,000
Public information	7,000	7,000
<hr/>		
Total	200,000	192,000
Federal funds	150,000	144,000

Highlights

- o Demonstration of an operational control program for oil and grease to be utilized by other municipalities in the San Francisco Bay Area.
- o Development of criteria for urban stormwater runoff pollution control planning (208 process) and regulation (Regional Water Quality Control Boards).
- o Mitigation of an existing local problem.
- o Participation and support by local municipality and the Regional Water Quality Control Board.

Department of Public Works

City of
Richmond



October 10, 1979

Terry Bursztynsky, P.E.
Water Quality Program Manager
Association of Bay Area Governments
Hotel Claremont
Berkeley CA 94705

PROPOSED FIELD DEMONSTRATION STUDY FOR CONTROLLING OIL AND
GREASE IN STORMWATER RUNOFF

This is in confirmation of the promise of support and
assistance made by Messrs. Osborne and Fuller this date.

We will be pleased to place at your disposal the use of
our facilities, personnel expertize, and prepared plans and
documents in conjunction with the proposed project.

We consider the project of importance not only for the
study of areawide and nationwide guidelines, but especially
important for the City of Richmond development.

R. S. LATCHAW
Director of Public Works

RSL/ji

INLAND CHEMICAL SPILLS

Problem Area

Many oil and chemical spills occur each year in the San Francisco Bay Region. In a recent nine-month period, the Department of Fish and Game reported 255 spills into surface waters. Forty-two percent of these spills were of non-petroleum related chemicals for which clean-up measures are almost non-existent in comparison to those for petroleum spills. Other spills occur directly on land and may readily reach surface waters. The initial 208 plan identified substantial inconsistencies in procedures for preventing and cleaning-up of inland spills. These inconsistencies included questions of responsibility for prevention, responsibility for clean-up, whether clean-up should be attempted, training of personnel, methods of clean-up, and choices between clean-up or flushing chemicals into the nearest watercourse or storm sewer.

As a recent example, a pump failure at a winery in the Napa Valley caused wine and grape juice to spill into the Napa River and kill an estimated 2,000 fish. The winery had no procedure for preventing the spill from reaching the river. Clean-up consisted of damming the river and pumping that segment dry. Large pools of polluted water remained and the earth dam placed to contain the spill constituted yet another adverse impact to the river ecosystem.

Objective and Approach

ABAG, in cooperation with county Offices of Emergency Services, will develop control measures for inland chemical spills. This one-time study would produce recommendations for improvement of prevention and clean-up of spills and would concentrate on spills of chemicals other than petroleum. The recommendations would be incorporated into the Environmental Management Plan and implementation agreements sought from local agencies.

Schedule

July 1980 - June 1981

Participants

ABAG
County Offices of Emergency Services

Budget

Project management and policy guidance	\$10,100
Conduct of task	93,800
Public information and participation	10,100
Environmental impact assessment	8,900
Management agency agreements	3,800

Total \$126,700

Federal Funds 95,000

Highlights

- o Development of control measures for inland chemical spills-- particularly non-petroleum spills.
- o Recommendations to counties and local jurisdictions for prevention of water quality problems from spills and improvement of spill clean-up methods.
- o Where applicable, revisions to county spill plans to accommodate all chemical spills.

PROBLEM AREA

The Napa Valley is one of the foremost grape growing regions in the world. Its unique combination of climate and soils cause the grapes grown here to be unsurpassed in quality for wine making.

Viticulture is the main land use on the valley floor and all the suitable land has been planted. As the demand for high quality wine grapes increases, many vineyards are being forced into the adjacent hills of the Upper Napa Watershed. With the advent of developing hillside vineyards and unprotected slopes, soil erosion, sedimentation and water quality degradation have become serious problems.

These problems have been identified in the 208 plan for Napa County, and a demonstration project showing the beneficial effect of Best Management Practices over the next decade should be implemented.

OBJECTIVES AND APPROACH

The Council of Bay Area Resource Conservation Districts proposes to conduct a demonstration project that will prove the effectiveness of selected Best Management Practices. The demonstration project will address both on-site effectiveness as well as off-site benefits. The results will be applied to the proper planning for hillside agriculture. Two watersheds with similar characteristics have been selected. One will be used for implementing the proposed BMP's and the second watershed will serve as a control area. The tested BMP's will address runoff and sediment control in selected critical erosion hazard areas.

The implementation watershed selected is the Diamond Mountain/Kortum Canyon Area just west of the community of Calistoga. It is 1,997 acres in extent. The control watershed selected is the Pickle Creek Watershed. It is 1,785 acres in extent. Best Management Practices in the project area will be implemented on a voluntary basis using resource management systems and financial assistance. Several BMP's may be utilized in each resource management system. The following are the proposed specific tasks:

- o Monitor and analyze surface runoff and sediment load of the model and control watersheds.
- o Monitor accelerated erosion in the watersheds.
- o Select resource management systems which will lead to erosion and sediment control.
- o Analyze data from the model and control watersheds to demonstrate the effectiveness of BMPs selected from the Council's handbook developed for the region.
- o Evaluation of implemented BMPs as to usefulness in erosion and sediment control.
- o Assess costs and benefits for BMPs and resource management systems.

Schedule

July 1980 - June 1982

Participants

ABAG

Council of Bay Area RCDs

<u>Budget</u>	<u>Phase I 1980-81</u>	<u>Phase II 1981-82</u>
Project Management	\$15,000	\$15,000
Engineering	85,000	17,000
BMP Installation	150,000	150,000
Sampling and Analysis	15,000	45,000
Data Evaluation	5,000	20,000
Cost/Benefit Assessment	5,000	25,000
Public Information and Reports	10,000	15,000
Management Agreements	3,000	-0-
	<hr/>	<hr/>
Total	288,000	280,000
Federal funds	218,000	210,000

HIGHLIGHTS

- o Potential to stop hillside and vineyard damage due to erosion.
- o Potential to stop downstream sedimentation and water quality degradation.
- o Demonstrates cost-effectiveness and environmental-effectiveness of Best Management Practices.
- o Results applicable to other similar areas throughout the Bay Area.
- o Local support

PRIORITY II PROJECTS

HYDROGRAPHIC MODIFICATIONS AS BEST MANAGEMENT PRACTICES

Problem Area

Various hydrographic modifications have been made in the Bay Area to accommodate increased urban storm runoff, avoid flooding and/or regulate stream flow. These modifications were made within a body of water, to its banks or in its drainage area. They include stream channelization, bank modification, water impoundment, dredging and spoil disposal, flood control projects, and others. These practices have changed the natural hydrologic, geomorphologic and ecologic character of stream systems. These changes may have beneficial and/or adverse impacts on regional water quality. For example, concrete lining of stream channel may result in reduction of stream flows during dry seasons due to decreased replenishment from soil through percolation and infiltration. Use of impoundments to regulate urban storm runoff reduces discharge of non-point source pollutants (sediment loads) to streams. Engineering practices to minimize channel deterioration and scouring reduce sediment loads. A better understanding of the various effects hydrographic modifications have on regional water quality will help Bay Area develop a most cost-effective non-point source control program.

Objective and Approach

This proposed task is to quantify both the beneficial and adverse water quality impacts of various hydrographic modifications throughout the Bay Area. The objective is to determine which types of modification have beneficial effects on water quality and which types have negative impacts. For those modifications determined to have beneficial effects, investigation will be made to see if they can be used to offset or control non-point source pollution. For those modifications found to be a potential source of non-point pollution, appropriate control measures will be recommended.

A systematic approach will be used to conduct this proposed study. Emphasis will be placed on the impacts of hydrographic modifications on individual stream reaches as well as the cumulative effects on the water quality of San Francisco Bay. These will include the following major sub-tasks:

- 1) Site selection - ABAG will work closely with Bay Area county 208 coordinators and consult with U.S. Army Corps of Engineers, RWQCB, and other agencies and districts to develop a list of sites for detailed study. Representative sites will be selected for each of the three major categories of hydrographic modifications (channel modification/channelization, water impoundment and bottom dredging). The sites selected will be away from discharging points of major sources and have relatively homogeneous stream characteristics.
- 2) Develop and conduct monitoring program - Existing available data will be obtained and used to the extent possible. If there are deficiencies in the existing data, an appropriate monitoring program will be developed for each of the selected sites. Appropriate water quality parameters (D.O., Turbidity, TSP, BOD, etc.) and hydraulic characteristics (flow and transport characteristics) will be monitored

both upstream and downstream of the modifications. The exact monitoring methods, parameters and duration will be decided based on the type of hydrographic modification to be investigated.

- 3) Statistical analysis of collected data - Multiple regression analysis will be used to analyze the collected data to determine their statistical validity and significance. The relationship between water quality parameters and various hydrographic modifications will be quantified to the extent possible.
- 4) Engineering evaluation and recommendations - Based on the results of previous tasks, engineering evaluation will be made to determine the beneficial and adverse effects of various hydrographic modifications. Recommendations will be made for regional policies and actions requiring specified mitigation measures, prohibiting certain types of modifications, or encouraging certain types of modifications as part of non-point source control program. Implementing agency, environmental, social and economic effects of the recommended policies and actions will also be identified.

Schedule

July 1980 - June 1981

Participants

ABAG
Counties
Consultant

Budget

Subtask 1	\$15,000
Subtask 2	80,000
Subtask 3	10,000
Subtask 4	20,000
Project management and policy guidance	10,000
Public information and participation	7,000
Environmental impact assessment	10,000
Management agency agreements	3,000
<hr/>	
Total	\$155,000
Federal Funds	116,000

Highlights

- o Quantification of beneficial and adverse water quality impacts of various hydrographic modifications

- o Recommendations for improving the practices of hydrographic modifications which can be used to control or offset non-point source pollution
- o Recommendation of mitigation measures for hydrographic modifications having negative water quality impacts
- o Incorporation of beneficial practices into Bay Area 208 plan

EVALUATION OF NEW PAVING MATERIAL

Problem Area

Impervious surfaces have greatly increased urban runoff rates and volumes, and pollutant loadings into receiving waters. Excluding San Francisco, a range of increase in urban land in the Bay Area from 13 to 99 percent is expected by the year 2000. This directly translates into a similar increase in street surfaces and parking lots. Presently, street surfaces account for 16 percent of the urban areas; parking lots vary from three to 14 percent; and driveways cover five percent of the land.

Porous pavements for urban runoff control are being studied. A 1972 study by the Franklin Institute of Research indicated the multiple benefits of using porous asphalt pavements including recharge of groundwaters, flood control, and water quality.

A study of the Concord Pavilion parking lot in terms of its potential in reducing runoff and consequently pollutant washoff provides an opportunity to quantify and compare a new and unique alternative measure for urban runoff control in the Bay Area.

Objective and Approach

This study proposes to demonstrate the effectiveness of turf-stone and grass surfaces as a viable alternative urban runoff control measures to be used in the San Francisco Bay Area. The demonstration will address both on-site effectiveness as well as off-site benefits. The results will be applied to developing urban watersheds using existing urban runoff data. Aggregate impacts of turf-stone and grass surfaces will be regionally evaluated for the projected urban areas and uses such as parking lots, driveways, drive-in theatres, school yards, cemeteries, parks and similar areas.

The prototype site selected for this study is the three year old parking lot of the Concord Pavilion in Concord, Contra Costa County. This five and a half acre lot is surfaced with diamond-shape turf-stones with California wild grass and Alpha-Fescue grown on top soil filling the two-foot by two-foot blocks. The following specific tasks are summarized for the proposed study:

- Monitor surface runoff and baseflow quantity and quality for select parameters at the prototype lot and at the control lot.
- Monitor daily parking lot occupancy at both sites and maintenance requirements and costs for both lots.
- Calibrate a simulation model with the prototype and control lot data
- Generate flow - pollutant concentration - frequency relationships for both of the lots
- Evaluate the on-site effectiveness of the turf-stone and grass surfaces based on the comparative economic analysis of the savings achieved if equivalent flow-pollutant concentration-frequency relationships were to be achieved by treatment only

- Generate flow - pollutant concentration - frequency relationships at select watersheds in the Bay Area.
- Develop regional criteria for different use conditions: subsurface soils stability, and durability; soils - subsurface pollutant accumulation - degradation relationships; grass - pollutant relationships; investigate pollutant movement through unsaturated zone under different water level conditions
- Evaluate regional impacts based on projected urban development uses and localities

Schedule

July 1980 - June 1982

Participants

ABAG
City of Concord
Consultant

Budget

Project management	\$12,000
Engineering	30,000
Site preparation	15,000
Sampling and analysis	45,000
Data Evaluation	15,000
Cost and effectiveness evaluation	24,000
Public information and reporting	20,000
Management agreements	3,000
<hr/>	
Total	164,000
Federal funds	123,000

Highlights

- Potential to significantly reduce urban runoff pollution
- Demonstrates new and unique concept
- Takes advantage of existing installation
- Results applicable throughout California
- Local support (see attached letter)

City of Concord

PHONE: (415) 671- 3101

CITY COUNCIL

William H. Dixon, Mayor
Laurence B. Azevedo
June V. Bulman
Richard L. Holmes
Richard T. LaPointe
Farrel A. Stewart, City Manager

September 28, 1979

Mr. Terry Bursztynsky
Water Quality Program Manager
Association of Bay Area Governments
Hotel Claremont
Berkeley, CA 94705

We are pleased you have selected the Concord Pavilion parking lot as a candidate demonstration area suitable for the National Urban Runoff Program as part of the Bay Area's 1980-81 water quality management planning. We support the project and indicate our support by allowing this technical study to be carried out using the Pavilion facilities. We will assist ABAG in any way possible within our financial limitations.



Cosmo D. Tedeschi
Director of Public Works

CDT:kf/5:03



INTERLOCKING PAVING STONES

September 17, 1979

Mr. Terry Bursztynsky
Water Quality Program Manager
c/o Mr. Vefa Yucel
Association of Bay Area Governments
Hotel Claremont
Berkeley, Ca. 94705

Dear Sir:

In response to a request by your group I wish to state Muller Supply Company's willingness to help in the cause. You will need product and technical information from every available source. We will assist in that area wherever we can. We have considerable experience with the turf paving concept and will share that with you.

We will also consider supplying you with reasonable amounts of specific materials, which we manufacture, like that used on the Concord Pavillion. We should like to discuss these needs with you further.

There have been numerous installations of Turfstones in the Bay Area and we can supply you with many of the details important to your research.

Please advise me of your feelings on this matter.

Sincerely,
Muller Supply Co.



Dan Williams
Vice President

CONTROL OF INDUSTRIAL DUMPING

Problem Area

Indiscriminate dumping of industrial materials such as oils, toxic metals, chemicals directly into storm sewers and stream channels is a frequently occurring event witnessed in the Santa Clara County. Damage to sanitary sewage facilities has also been reported by the cities of Mountain View, Sunnyvale, Santa Clara and San Jose. These jurisdictions claim that source identification is almost impossible and enforcement mechanisms so far have failed to impact the situation.

Objective and Approach

This study will develop a program which will allow Santa Clara Valley industries to properly store and dispose of their own waste products. The study will be carried out in three steps: first step will be the establishment of a monitoring program in stream reaches where frequent dumping has occurred in the past; the second step will develop control programs by identifying storage and disposal methods and sites for the type of industry and its waste production; and the third step will introduce these programs to the industries and provide educational assistance and monitor the effectiveness of the programs through a monitoring mechanism which will be developed as part of that control program.

Schedule

July 1980 - June 1982

Participants

ABAG
Santa Clara County Sanitary District

Budget

Subtask 1	\$60,000
Subtask 2	23,600
Subtask 3	22,000
Project management and policy guidance	11,400
Public information and participation	11,400
Environmental impact assessment	10,000
Management agency agreements	4,300
<hr/>	
Total	142,700
Federal Funds	107,000

Highlights

- o Identification of significant water quality problem areas and pollutants due to industrial dumping
- o Develop control programs that are industry specific
- o Introduce and educate industries to control programs and provide technical assistance

INNOVATIVE FINANCIAL APPROACHES FOR LOCAL GOVERNMENTS

Problem Area

Local financing of non-point source controls has become a major problem in California as a result of recent fiscal challenges to local government, including Proposition 13 and the Gann Initiative. The changing revenue picture for cities and counties has affected their ability to pay for control measures having beneficial impact on surface water quality.

Objective and Approach

The purpose of this task is to identify and develop alternative financial strategies for managing non-point sources of water pollution. Recent limitations on the ability of California's local governments to collect property tax revenues have cut deeply into their financial resources. One result has been that many cities and counties have cut back or eliminated street sweeping and other control measures having a beneficial impact on surface water quality. As other sources of revenue have become available in the meantime, these services are in some cases being restored to previous levels. The strategies identified and developed in this task would expand on current financing knowledge to include not only the traditional sources of money--Federal and State grants combined with available local revenues--but would also explore market-based incentives, tax consequences to private participants, government leasing, public works equipment sharing, and other relatively unusual but workable techniques. ABAG's recent conference, "Paying for Environmental Management," gathered leading experts from across the country to discuss non-point source financing and related issues; this conference provides ABAG a strong base from which to conduct this task. Local governments in the Bay Area have the technical and political foundation to undertake these important duties; it is the financial side of things that must be assisted, and ABAG would work closely with its member governments to accomplish the objectives of this task.

Schedule

July 1980 - June 1981

Participants

ABAG

Budget

Project management and policy guidance	\$ 5,600
Financial evaluation	70,000
Environmental, social and economic assessment	4,200
Public participation	5,600
Management agency agreements	2,100
<hr/>	
Total	\$ 87,500
Federal Funds	65,500

Highlights

- o Identification of financial strategies available to local governments to supplement revenues allocated to surface runoff management
- o Discussion of equipment and cost sharing techniques, including government leasing, usable by local public works departments
- o Evaluation of market-based incentives and tax consequences to private parties involved in water quality management

MONITOR AND EVALUATE PLAN IMPLEMENTATION

Problem Area

It is essential for guiding the continuing planning process to monitor and evaluate both current planning and implementation of the existing Water Quality Management Plan.

Objective and Approach

ABAG will undertake an evaluation program for the water quality portions of the EMP, with special emphasis on the surface runoff element. This evaluation shall be coordinated with the semi-annual evaluation meetings held by ABAG, the State Water Resources Control Board and EPA. Reports will be prepared semi-annually and submitted at least three weeks prior to the semi-annual evaluation. Copies of the report will be made available to the San Francisco Bay Regional Water Quality Control Board, State Water Resources Control Board and EPA.

Schedule

July 1980 - June 1981

Participants

ABAG

Budget

Planning and evaluation	\$40,000
Project management and policy guidance	3,200
Environmental assessment	2,400
Public participation	3,200
Management agency agreements	1,200

Total \$50,000

Federal Funds \$37,500

Highlights

- o A discussion of the status of implementation of the water quality portions of the EMP
- o An assessment of performance of identified management agencies, their accomplishments in carrying out the plans, and a review of their progress relative to commitments and schedules contained in management agency agreements which have been or will be obtained.

- o Status of financing programs for carrying out the plans.
- o An assessment of the effectiveness of the plans in managing sources of water pollution, particularly surface runoff.
- o Based on the above, an identification of deficiencies in the content and implementation of the water quality portions of the EMP, and establishment of corrective programs to remedy these deficiencies.
- o A status report and budget summary for tasks in the approved continuing planning process Work Program.

PRIORITY III PROJECTS

POLLUTION CASE STUDY OF BERKELEY CREEKS

Problem Area

The creeks of Berkeley have, by random sampling, been determined to be polluted. High fecal coliform counts have been found. Surface runoff is suspected as a source. One local resident has claimed that her dog became ill after drinking from Schoolhouse Creek. The City Council has recommended that action be taken to deal with the problem.

Objective and Approach

Sample headwaters and lower reaches of eleven named creeks plus tributaries: Cerrito Creek, Capistrano Creek, Blackberry Creek, Codornices Creek, Schoolhouse Creek, Lincoln Creek, Strawberry Creek, Potter Creek, Derby Creek, Harwood Creek, Marin Creek. The purpose of sampling is to determine level of pollution as measured by fecal coliform. Source identification will be formed on those creeks found to have significant pollution levels. Programs to control pollution from these sources will be developed.

Schedule

July 1980 - June 1981

Participants

ABAG
City of Berkeley (Health and Public Works Departments)

Budget

Conduct of study	\$75,000
Project management and policy guidance	8,100
Public information and participation	8,100
Environmental impact assessment	7,100
Management agency agreements	3,100
<hr/>	
Total	101,400
Federal Funds	76,000

Highlights

- o Sanitary survey of Berkeley Creeks
- o Source identification for significantly polluted sections
- o Recommendations for control of sources

URBAN RUNOFF AND MUNICIPAL FACILITIES INTEGRATION

Problem Area

Municipal wastewater facilities planning for control of inflow and sewer overflows, and any necessary treatment, is not integrated with urban runoff control planning. The East Bay Municipal Utility District (EBMUD) is undertaking in 1979-80 a major Step 1 study that will produce structural solutions to sewage overflows into San Francisco Bay. These will produce a specific reduction in pounds of pollutants reaching the Bay. At this time, no one knows what level of effort and at what cost it would take to achieve an equivalent pollutant reduction through the application of best management practices to urban runoff reaching the Bay through a separate storm sewer system. This information is needed before surface runoff control can be placed into perspective with and integrated with point source control.

Objective and Approach

This proposed project would piggyback the development and evaluation of urban runoff control measures for a major metropolitan area centered on Oakland onto the just beginning EBMUD wet-weather discharge project. It is the intent to develop an urban runoff management plan in Phase I that would achieve reduction of total pollutants entering the Bay comparable to those achieved by the structural solutions proposed by EBMUD. In Phase II the costs of the two approaches would then be compared and a recommendation made for the integration of urban runoff and point source control strategies would be made in Phase III. It should be noted that the principal solutions developed by EBMUD will be to the sewerage system and that at this time sufficient capacity exists at the 168 mgd. secondary treatment plant to handle the inflow.

Schedule

July 1980 - June 1981

Participants

ABAG

Budget

Subtask 1	\$99,700
Subtask 2	49,900
Subtask 3	49,800
Project management and policy guidance	21,600
Public information and participation	21,600
Environmental impact assessment	18,900
Management agency agreements	8,000

Total	269,500
Federal Funds	202,000

Highlights

- o Cost-effective development of urban runoff management plans for Oakland
- o Comparison of cost-effectiveness with structural solutions developed in the EBMUD wet-weather discharge project
- o Integration of urban runoff and point source control strategies to achieve optimum cost-effectiveness.

DEMONSTRATION OF LAGOON PROTECTION MEASURES

Problem Area

Excessive algae growth, odor problems are frequent in the San Mateo Lagoon. A pollution control program is being developed for the lagoon under the present 208 planning program to alleviate these problems.

Objective and Approach

A pollution control program is being developed for the lagoon which includes urban runoff controls and lagoon operation alternatives. This study proposes to quantify the impact of the recommended control program in the lagoon through the simulation of upstream pollutant loads and processes in the lagoon itself. HSPF will be used in non-point source pollutant simulation and a dynamic water quality model will be employed to simulate the lagoon dynamics. A storm monitoring program will be established to provide model calibration data.

Schedule

July 1980 - June 1981

Participants

ABAG
San Mateo County

Budget

Simulation and modeling	\$68,400
Monitoring program	50,000
Project management and policy guidance	12,800
Public information and participation	12,800
Environmental impact assessment	11,200
Management agency agreements	4,800
<hr/>	
Total	160,000
Federal funds	120,000

Highlights

- o Simulation of surface runoff pollutants to San Mateo Lagoon
- o Comparison of actual effectiveness of lagoon pollution control program

PERFORMANCE STANDARDS FOR NICASIO WATERSHED

Problem Area

Nicasio Reservoir is the major water supply for the urban portions of Marin County. Past studies have shown that nitrogen and phosphate concentrations in this lake have risen to unacceptable levels and that future development controls are key to water quality improvement. The recently completed Nicasio Valley Community Plan has recommended land use measures that will lead to the improvement and maintenance of high water quality in the reservoir. These measures are general in nature and are not in sufficient detail to be directly implemented.

Objective and Approach

Detailed land use performance standards to protect the quality of Nicasio Reservoir will be developed. Land uses covered will include residential, grazing and agriculture. Standards will specify per unit of land use the maximum allowable runoff for each major pollutant. These standards will be based on the capacity of the reservoir to assimilate wastes and on the environmental characteristics of the properties draining to it. Means of measuring compliance with and effectiveness of the standards will also be developed.

Schedule

July 1980 - June 1981

Participants

ABAG
Marin County
Marin Municipal Water District

Budget

Development of performance standards	\$56,200
Project management and policy guidance	6,100
Public information and participation	6,100
Environmental impact assessment	5,300
Management agency agreements	2,300
<hr/>	
Total	76,000
Federal Funds	57,000

Highlights

- o Detailed land use performance standards based on local watershed conditions and ultimate assimilative capacity of Nicasio Reservoir
- o Criteria for measuring compliance and effectiveness of standards

SUISUN MARSH POLLUTION SOURCE ANALYSIS AND CONTROL PROGRAM

Problem Area

Agricultural practices which affect surface runoff in the Suisun Creek watershed deserve concentrated identification and mitigation efforts because they impact the ecologically sensitive and nationally significant Suisun Marsh.

Objective and Approach

Pollutants, including sediment, pesticides and fertilizers which are identified as entering the Marsh via Suisun Creek will be traced to their sources; causes will be determined and effective remedies will be sought. The program will involve upstream and downstream monitoring and detailed field work to determine sources and causes. Mitigation efforts will include site-specific application of previously developed BMPs and may also involve institutional controls.

Schedule

July 1980 - June 1982

Participants

ABAG
Solano County

Budget

Monitoring program	\$60,000
Source identification	26,400
Site-specific source control development	30,000
Project management and policy guidance	12,600
Public information and participation	12,600
Environmental impact assessment	11,000
Management agency agreements	4,700

Total 157,300

Federal funds 118,000

Highlights

- o Identification of agricultural pollutants and their sources in Suisun Creek
- o Recommended application of rural best management practices and institutional controls

DISCHARGE OF PESTICIDES

Problem Area

Pesticides can act directly as toxins or carcinogens. They can also be concentrated from harmless levels in the water to dangerous levels in sediments and the aquatic food chain. As an example, the Bay Area experiences annual die off of striped bass, the flesh of which has been shown to contain various toxic substances.

Objective and Approach

This program would define the magnitude of pesticide discharges to surface waters in a mixed urban/rural area. ABAG would assess the quantities of pesticides released to surface waters of the region, possibly by type of pesticide. This would be done by inventorying pesticide sales, agricultural application, pesticide manufacture, known disposal and historical water quality data. The technical report produced would be used for subsequent establishment of regional control measures.

Schedule

August 1980 - February 1981

Participants

ABAG

Budget

Conduct of task	\$24,600
Project management and policy guidance	2,700
Public information and participation	2,700
Environmental impact assessment	2,300
Management agency agreements	1,000
<hr/>	
Total	33,300
Federal Funds	25,000

Highlights

- o A technical report reviewing pesticide use, origins, methods of disposal and seriousness of problem.

DISTRIBUTION OF URBAN RUNOFF CONTROL BENEFITS

Problem Area

As point source water pollution is abated, more effort and funds will be directed at control of non-point source pollution. In urban areas non-point source pollution control measures such as street sweeping, street surface maintenance and catch basin cleaning are basic urban housekeeping activities and have multiple benefits. The value of these benefits, particularly in urban areas in need of economic revitalization, is unknown. Confusion regarding value and distribution of benefits makes it difficult to obtain funding for street sweeping, etc.

Objective and Approach

Evaluation and where possible quantification of all benefits, including incidental, from surface runoff control measures. Factors that contribute to urban decay and revitalization will be reviewed. The role of surface runoff control measures in urban revitalization will be determined. The level of effort and costs of surface runoff control measures consistent with conditions that encourage neighborhood improvement will be estimated. Costs will be compared with those of other economic redevelopment measures.

Schedule

July 1980 - June 1981

Participants

ABAG
Consultant

Budget

Conduct of study	\$82,900
Project management and policy guidance	9,000
Public information and participation	9,000
Environmental impact assessment	7,800
Management agency agreements	3,300

Total \$112,000

Federal Funds 84,000

Highlights

- o Identify role of surface runoff control measures in urban revitalization
- o Evaluate neighborhood benefits from control program
- o Estimation of level of effort and costs of control program that will achieve neighborhood improvement

PILOT EDUCATION PROGRAM FOCUSED ON LAGOON AND STREAM-SIDE AREAS

Problem Area

The lagoons and streams along San Francisco Bay in San Mateo County presently suffer problems of algal blooms, nuisance odors and oil, debris and litter accumulation. The source of the problem ultimately leads back to the local community and their awareness of the situation. A community outreach program is needed to inform the public about the problem and elicit support for a clean-up program.

Objective and Approach

Educational materials will be developed to be used in schools, parks, the Coyote Point Museum, and with community groups. Materials will include exhibits, slide shows and brochures. Educational outreach to sensitive areas (i.e., lagoon areas, San Pedro Watershed, Pescadero, San Bruno Mountain, North Fair Oaks and East Palo Alto) will be provided. Where feasible, clean community programs sponsored by Keep America Beautiful will be used.

Schedule

July 1980 - June 1981

Participants

ABAG
San Mateo County
East Palo Alto Municipal Council
PROBE
Daly City

Budget

Development and conduct of pilot education program	\$37,600
Project management and policy guidance	4,000
Environmental impact assessment	3,600
Management agency agreements	1,500
	<hr/>
Total	46,700
Federal Funds	35,000

Highlights

- o Development of education program keyed to specific problems and citizen actions.
- o Increase level of public awareness and support for clean-up program

SECTION 201 PROJECTS

UPDATE THE 20-YEAR MUNICIPAL FACILITIES LIST

Problem Area

Federal regulations require a 20-year list of municipal wastewater collection and treatment system needs.

Objective and Approach

ABAG will update the 20-year municipal facilities needs list in accordance with disaggregation of population projects by sewerage agency and in accordance with procedures agreed upon by EPA and the SWRCB.

Schedule

July 1980 - June 1981

Participants

ABAG

Budget

Update 20-year needs list	\$36,000
Public information and comment	6,000
Policy guidance	6,000
	<hr/>
Total	\$48,000
Federal funds	36,000

UPDATE POPULATION PROJECTIONS

Problem Area

Accurate population and land use projections are the foundation of environmental planning. ABAG's projections must be refined and updated as more demographic data become available and local policies change. Major funding decisions about wastewater facilities construction depend upon such projections. In recognition of this dependence, and with the desire to have all Federally funded construction planned on a consistent basis, EPA's Region IX has required ABAG to obtain assurances from local governments that they will use the adopted projections for all of their planning purposes.

Objective and Approach

ABAG staff will collect data on changes in local policies, information on industrial siting plans, etc., and modify the projections accordingly. Conflicts between ABAG and local agencies' projections will be resolved at staff meetings. Projections will be disaggregating to sewer service areas as required by SWRCB Resolution No. 78-56 and used by the RWQCB to develop waste flow/load estimates.

The liaison program with cities and counties, begun in ABAG's 1976-1978 environmental planning effort, needs to be continued to provide for assessment of changing local development policies impact on environmental objectives. Such liaison is also essential to determine possible inconsistencies between regional environmental objectives and regional objectives for housing and economic development as currently implemented by local jurisdictions. Clarification of regional/local policy conflicts is essential to obtaining local jurisdictions' enforcements of the continued use of regional growth projections.

Schedule

July 1980 - June 1981

Participants

ABAG

Budget

Update population projections	\$38,000
Obtain local endorsement	50,000
Program guidance	10,000
Public information	12,000
<hr/>	
Total	\$110,000
Federal funds	82,500

INTEGRATION OF MUNICIPAL FACILITIES WITH AIR QUALITY PLANS

Problem Area

Municipal wastewater facilities, due to unexpected population growth pressures, may allow, through the availability of essential services, population growth that exceeds air quality NAP projections. This can result in deterioration of air quality and violation of the SIP.

Objective and Approach

The objective is to integrate municipal wastewater facilities with air quality plans. ABAG will monitor population growth in sewerage service areas through dry weather wastewater flows, housing starts and other means. If population growth exceeds projected levels, ABAG will calculate the change on a regional level, adding areas with excess population and areas with below normal growth. The total regional increment would be reported to the NAP planning agency. If the NAP planning agency finds that such growth would violate the NAP, the ABAG staff would assist the NAP agency in developing appropriate corrective measures. In this region, ABAG is also the NAP planning agency, however this task would fund only the 208 designated agency activities.

Schedule

July 1980 - June 1981

Participant

ABAG

Budget

Conduct of study	\$46,400
Project management and policy guidance	5,000
Public information and participation	5,000
Environmental impact assessment	4,400
Management agency agreements	1,900
<hr/>	
Total	62,700
Federal Funds	47,000

Highlights

- o Development of regional increment to population growth
- o Evaluate effect on air quality NAP projections
- o Development of appropriate corrective measures, where necessary

EXFILTRATION STUDY IN ALAMEDA COUNTY

Problem Area

Exfiltration of raw sewage from sewers in older cities in Alameda County is suspected, by the District, of polluting groundwaters and surface waters.

Objective and Approach

The District would provide a county-wide study of the exfiltration problem and assess the cost of correcting the problem. The study would correlate existing infiltration and inflow information, location of surface and ground-water bodies, soil types, sewer repair records and analyses of samples.

Schedule

July 1980 - June 1981

Participants

ABAG

Alameda County Flood Control and Water Conservation District

Budget

Conduct of study	\$125,400
Project management and policy guidance	13,600
Public information and participation	13,600
Environmental impact assessment	11,800
Management agency agreements	5,000

Total \$169,400

Federal funds 127,000

Highlights

- o Identification of exfiltration problem areas
- o Assess magnitude of problem and effect upon surface and groundwaters
- o Develop costs for correcting significant problem areas

DEVELOP INDUSTRIAL PRETREATMENT PROGRAMS

Problem Area

Toxic materials are suspected as the cause of many adverse effects on aquatic life. Major sources of these materials are non-discrete discharges to municipal sewerage systems. EPA and the RWQCB require that municipal dischargers implement industrial waste pretreatment programs directed at toxic influents not readily amenable to removal in the municipal facility. EPA is in the process of issuing technology based pretreatment requirements for numerous industrial categories. It is difficult for smaller wastewater management agencies to keep abreast of changing requirements, and develop effective pretreatment programs including treatment requirements, regulatory provisions and monitoring programs. There are 60 dischargers in the Bay Area.

Objective and Approach

The objective is to assist wastewater agencies in developing pretreatment programs. ABAG would develop model pretreatment ordinances for use by municipal dischargers. The RWQCB would interpret State regulations on pretreatment and identify agencies requiring improved ordinances. ABAG would also provide technical assistance to dischargers in the development of pretreatment programs and in tracking evolving Federal regulations.

Schedule

July 1980 - June 1981

Participant

ABAG

Budget

Development of ordinances	\$20,700
Project management and policy guidance	2,200
Public information and participation	2,200
Environmental impact assessment	2,000
Management agency agreements	900

Total 28,000

Federal Funds 21,000

Highlights

- o Development of model pretreatment ordinances for use by municipal dischargers
- o Provide technical assistance to dischargers for program development implementation, regulation and current requirements.

80 03557

U.C. BERKELEY LIBRARIES



C123314491

INSTITUTE OF GOVERNMENTAL
STUDIES LIBRARY

JAN 24 2025

UNIVERSITY OF CALIFORNIA

